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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--------------------------------|-------------|----------------------|-----------------------|------------------|
| 10/753,838 | 01/07/2004 | Gregory J. Hewlett | TI-37406 | 6779 |
| 23494 | 7590 | 08/23/2004 | EXAMINER | |
| TEXAS INSTRUMENTS INCORPORATED | | | BOUTSIKARIS, LEONIDAS | |
| P O BOX 655474, M/S 3999 | | | ART UNIT | PAPER NUMBER |
| DALLAS, TX 75265 | | | 2872 | |

DATE MAILED: 08/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/753,838

Applicant(s)

HEWLETT ET AL.

Examiner

Leo Boutsikaris

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 January 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 10-12, 15 and 24-26 is/are rejected.
- 7) ☒ Claim(s) 2-9, 13, 14, 16-23, 27 and 28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

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Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 January 2004 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5/20/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claim 28 is objected to because of the following informalities: Claim 28 should be made dependent from claim 27 (in correspondence to claims 13-14). Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 11-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Hewlett (US 5,812,303).

Regarding claim 1, Hewlett discloses a color wheel 30 (Fig. 2, line 66, col. 3 to line 4, col. 4) comprising:

at least two color segments, including a blue segment, 32, and a red segment, which transmit blue and red light correspondingly; and at least one other color segment 34, configured to transmit light substantially the same color as segment 32, i.e., blue with lower density, the segment 34 inherently comprising a plurality of segments, which can be split in a first and a second plurality of segments, each segment in the above pluralities being a transmissive region,

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and wherein each segment in the first plurality has a first transmissivity (being determined by the composition of the NDF) and each segment in the second plurality has a second transmissivity (which is the same as the said first one).

Regarding claim 11, the at least one other color segment 34 is included in one of the other two color segments, i.e., segment 32 (lines 1-4, col. 4).

Regarding claim 12, segment 34 can be inherently split into pluralities of randomly shaped regions.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hewlett (US 5,812,303).

Hewlett discloses all the limitations of the above claim except for teaching that the NDF carrying segment is located adjacent to its corresponding color segment, instead of being located inside the color segment. However, Hewlett teaches that the inventive color wheel has a neutral density filter NDF region for each color (lines 9-10, col. 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the NDF region adjacent to a corresponding color, since it has been held that a mere rearrangement of an element without modification of the operation of the device involves only routine skill in the art. *In re Japikse*,

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181 F.2d 1019, 86 USPQ 70 (CCPA 1950). Here, the NDF region allows the display of bits of data for longer periods of time (lines 11-12, col. 2 in Hewlett), and its exact position within the wheel is irrelevant. Forming the NDF region on the color wheel substrate, and adjacent to an existing color filter region is easier compared to forming it on an existing color filter region.

Claims 15, 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hewlett (5,812,303) in view of Lassar (US 2004/0080721).

Hewlett discloses all the limitations of the above claims except for teaching that the color wheel is used in a video display system, positioned between a light source and a light modulator. Lassar teaches that many display systems include a light source, a color wheel and a spatial light generator in that order ([0002]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the color wheel of Hewlett as apart of a display system, as taught by Lassar, since color light being incident on the SLM allows for color images being produced.

Allowable Subject Matter

Claims 2-9, 13-14, 16-23, 27-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and if claim 28 overcomes the objection set forth supra.

Claims 2-9, 13-14, 16-23, 27-28 are allowable over the prior art of record for at least the reason that even though the prior art discloses color wheels having NDF regions, or clear

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regions, the prior art fails to teach or reasonably suggest, regarding claims 2-9, 16-23, a color wheel filter wherein a material is deposited and patterned to remain only in either the first plurality or the second plurality of transmissive regions, and regarding claims 13-14, 27-28, a color wheel, wherein one of the first and second pluralities of transmissive regions includes circularly shaped transmissive regions having a diameter of at least about 0.1 millimeter, as set forth by the claimed combination.

Svetliza (US 6,309,070) discloses a color wheel having transparent sections within the wheel (Fig. 2).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Leo Boutsikaris whose telephone number is 571-272-2308.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Leo Boutsikaris, Ph.D.
Patent Examiner, AU 2872
August 19, 2004

